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ENGINEERING EVALUATION / FACT SHEET

BACKGROUND INFORMATION

Application No.:	R13-3036
Plant ID No.:	017-00045
Applicant:	Antero Resources Appalachian Corporation (Antero)
Facility Name:	West Union Compressor Station
Location:	West Union, Doddridge County
NAICS Code:	221210 (Natural Gas Distribution)
Application Type:	Construction
Received Date:	January 14, 2013
Engineer Assigned:	Jerry Williams, P.E.
Fee Amount:	$2,000.00
Date Received:	January 14, 2013
Complete Date:	February 15, 2013
Due Date:	May 16, 2013
Applicant Ad Date	January 15, 2013
Newspaper:	*The Herald Record*
UTM's:	Easting: 512.055 km Northing: 4,350.358 km Zone: 17
Description:	Proposal to construct and operate a natural gas compressor facility with five (5) natural gas fired reciprocating internal combustion engines, two (2) natural gas generators, one (1) tri-ethylene glycol (TEG) dehydration unit with associated reboiler and flare, five (5) storage tanks with a vapor recovery unit (VRU), product loadout rack, and related fugitive emissions.

DESCRIPTION OF PROCESS

The following process description was taken from Permit Application R13-3036:

Gas from surrounding pipelines will enter the facility through two (2) receivers and associated slug catchers. From there, the gas will be metered and routed through a scrubber and filter separator. Any produced liquids from the scrubber or separator are sent to the 400 barrel (bbl) settling tank (TK-1502). Gas from the filter separator is sent to one (1) of five (5) 1,627 HP Waukesha compressor engines (C100-C500). The five (5) compressor engines are controlled with non-selective catalytic reduction (NSCR) catalysts and air-fuel ratio controllers (1C-5C).

The compressed gas is then routed to another filter separator, with produced fluids going to the settling tank and gas going to the TEG dehydrator.

The TEG dehydrator contains a flash gas tank and 1.5 MMBtu/hr reboiler. The dehydrator has a design rate of 60 million standard cubic feet per day (mmscfd). Within the dehydrator unit, vent gas from the flash tank (DFLSH1) is routed to the reboiler (DREB1) to be used as fuel, with an assumed 95% efficiency for combusting the gas. Emissions from the reboiler are routed to the atmosphere. The dehydrator still vent (DEHY1) is controlled by a flare with at least 98% control efficiency (6C). Produced fluids from the dehydrator are routed to the settling tank. The dry gas from the dehydration process is either routed to a fuel gas scrubber, metered, and routed to the compressors as fuel gas or metered and sent to plant discharge.

All produced fluids enter one (1) 400 bbl settling tank (TK-1502) where the fluids settle out as either condensate or produced water. The produced water goes to two (2) 400 bbl produced water tanks (TK-1500 – TK-1501) and the condensate goes to two (2) 400 bbl condensate tanks (TK-200 – TK-201). Flashing only occurs at the settling tank as the fluids stabilize in the settling tank before going to the other storage tanks. All five (5) tanks are connected to a vapor recovery unit (VRU)(7C) where tank vapors are collected and recycled back into the gas system right before the initial filter scrubber. The produced fluids are trucked out via tanker trucks as needed (LDOUT1). The anticipated production is 461 bbl/day of condensate and 100 bbl/day of produced water.

Two (2) natural gas fired generators supply power to the facility, with one (1) as the primary generator (GEN1) and the other as the backup generator (GEN2). The backup generator will only operate if the primary generator goes down for service or for its own maintenance time.

There will also be small storage tanks (less than 1,000 gallons) located at the facility for storage of TEG, lube oil, waste oil, and coolant. Fugitive emissions from component leaks and emissions from venting or blowdown events will also occur.

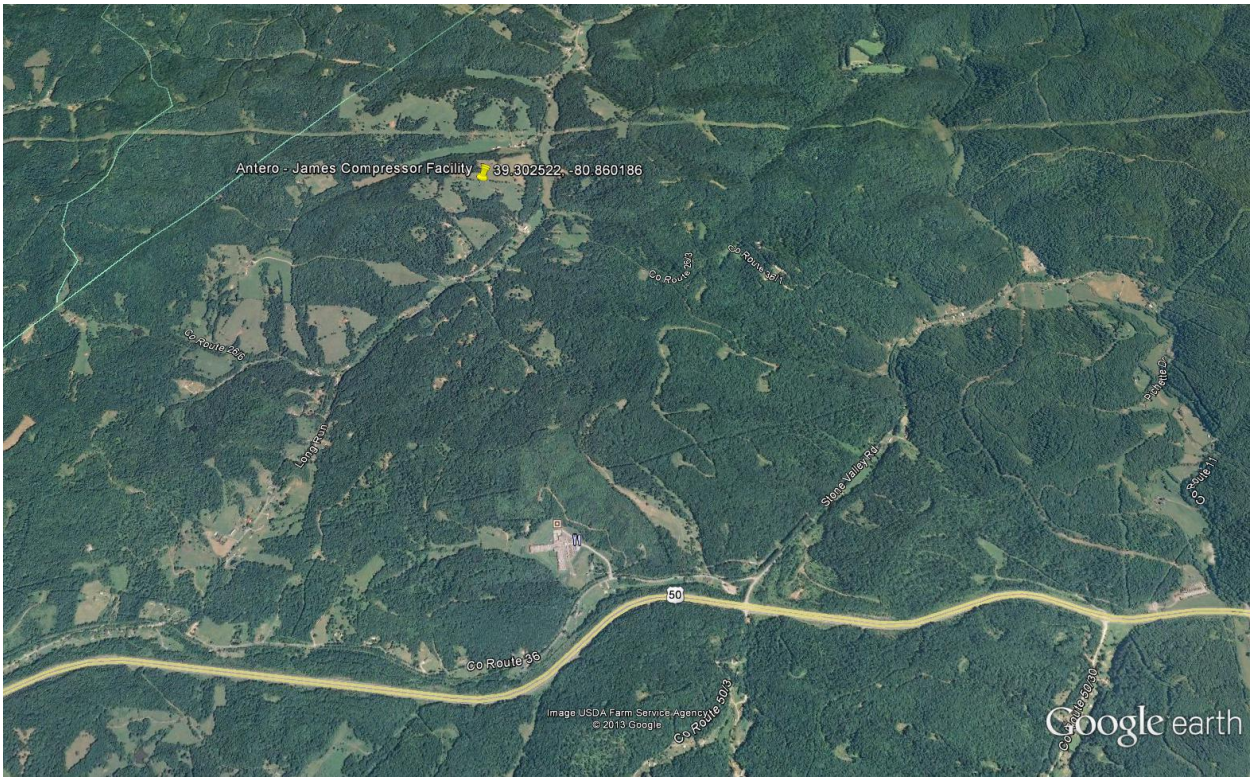
SITE INSPECTION

A site inspection was conducted on March 6, 2013 by Doug Hammell of the DAQ Enforcement Section. According to Mr. Hammell, the site location is appropriate for the proposed facility. The closest residence is more than 300 feet away.

Latitude: 39.302522
Longitude: -80.860186

Directions as given in the permit application are as follows:

From West Union: Drive 4.2 miles on US-50 West and turn right on Stone Valley Road. In 0.1 miles, take the first left on County Route 36/Duckworth Road. Drive 2.1 miles and make a right on Long Run Road. Go approximately 2.0 miles on Long Run Road and the facility will be located on the left.



ESTIMATE OF EMISSIONS BY REVIEWING ENGINEER

Emissions associated with this construction application consist of the combustion emissions from five (5) natural gas fired compressor engines (1E-5E), two (2) natural gas fired generators (6E-7E), one (1) TEG dehydrator still vent (8E), one (1) TEG dehydrator flash tank (9E), one TEG dehydrator reboiler (10E), five (5) 400 bbl tanks (settling, condensate, produced water) (11E-15E), one (1) product loadout rack (16E), and fugitive emissions. Fugitive emissions for the facility are based on calculation methodologies presented in EPA Protocol for Equipment Leak Emission Estimates. The following table indicates which methodology was used in the emissions determination:

Emission Point ID#	Process Equipment	Calculation Methodology
1E-5E	1,627 hp Waukesha 7044 GSI Reciprocating Internal Combustion Engine (RICE) w/ NSCR	Manufacturer's Data, EPA AP-42 Emission Factors
6E-7E	402 HP Natural Gas Fired Generators (Primary and Backup)	Manufacturer's Data, EPA AP-42 Emission Factors
8E	60 mmscfd TEG Dehydrator Still Vent w/ Flare	GRI-GlyCalc 4.0
9E	60 mmscfd TEG Dehydrator Flash Tank	GRI-GlyCalc 4.0
10E	1.5 MMBtu/hr TEG Dehydrator Reboiler	EPA AP-42 Emission Factors
11E	400 bbl Settling Tank	EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing)
12E	400 bbl Condensate Tank	EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing)
13E	400 bbl Condensate Tank	EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing)
14E	400 bbl Produced Water Tank	EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing)
15E	400 bbl Produced Water Tank	EPA Tanks 4.09d and E&P Tanks 2.0 (Flashing)
16E	561 bbl/day Product Loadout Rack	EPA AP-42 Emission Factors

The two (2) natural gas fired generators (6E-7E) are USEPA certified stationary spark ignition engines according to 40CFR60 Subpart JJJJ. Antero provided the USEPA Certificate of Conformity with this permit application.

The following table indicates the control device efficiencies that are required for this facility:

Emission Unit	Pollutant	Control Device	Control Efficiency
1,627 hp Waukesha 7044 GSI RICE w/ NSCR (1E-5E)	Nitrogen Oxides	NSCR	99 %
	Carbon Monoxide		98 %
	Volatile Organic Compounds		50 %
	Formaldehyde		76 %
60 mmscfd TEG Dehydrator Still Vent (8E)	Volatile Organic Compounds	Flare	98 %
	Hazardous Air Pollutants		98 %
60 mmscfd TEG Dehydrator Flash Tank (9E)	Volatile Organic Compounds	Recycled Reboiler	95 %
	Hazardous Air Pollutants		95 %
Product Tanks (11E-15E)	Volatile Organic Compounds	Vapor Recovery Unit	100 %
	Hazardous Air Pollutants		100 %

The total facility PTE for the West Union Compressor Station is shown in the following table:

Pollutant	Facility Wide PTE (tons/year)
Nitrogen Oxides	17.08
Carbon Monoxide	35.54
Volatile Organic Compounds	68.74
Particulate Matter	6.13
Sulfur Dioxide	0.19
Formaldehyde	1.28
Total HAPs	6.25
Carbon Dioxide Equivalent	50,375

Maximum detailed controlled point source emissions were calculated by Antero and checked for accuracy by the writer and are summarized in the table on the next page.

Antero Resources Appalachian Corporation – West Union Compressor Station (R13-3036)

Emission	Source	NO_x		CO		VOC		PM		SO_2		Formaldehyde		Total HAPs		CO_2e	
Point ID#		lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year	lb/hr	ton/year
1E	Compressor Engine #1	0.54	2.36	1.08	4.71	1.09	4.79	0.26	1.15	0.008	0.035	0.04	0.19	0.2	0.88	1,995	8,738
2E	Compressor Engine #2	0.54	2.36	1.08	4.71	1.09	4.79	0.26	1.15	0.008	0.035	0.04	0.19	0.2	0.88	1,995	8,738
3E	Compressor Engine #3	0.54	2.36	1.08	4.71	1.09	4.79	0.26	1.15	0.008	0.035	0.04	0.19	0.2	0.88	1,995	8,738
4E	Compressor Engine #4	0.54	2.36	1.08	4.71	1.09	4.79	0.26	1.15	0.008	0.035	0.04	0.19	0.2	0.88	1,995	8,738
5E	Compressor Engine #5	0.54	2.36	1.08	4.71	1.09	4.79	0.26	1.15	0.008	0.035	0.04	0.19	0.2	0.88	1,995	8,738
6E	Generator Engine	0.89	3.88	1.77	7.76	0.62	2.72	0.07	0.3	0.002	0.009	0.07	0.31	0.11	0.49	408	1,784
7E	Generator Engine	0.89	0.22	1.77	0.44	0.62	0.16	0.07	0.02	0.002	0.001	0.07	0.02	0.11	0.03	408	102
8E/9E	Dehydrator Still Vent	0	0	0	0	2.16	9.45	0	0	0	0	0	0	0.28	1.25	82	360
10E	Dehydrator Reboiler	0.18	0.81	0.15	0.68	0.01	0.04	0.01	0.06	0.001	0.005	0.0001	0.001	0.003	0.02	220	963
Flare/Pilot	Flare Combustion	0.08	0.37	0.71	3.11	0.0001	0.0004	0.0001	0.0005	0.00001	0.00004	0	0	0.0001	0.0001	716	3,133
11E-15E	Storage Tanks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16E	Truck Loading	0	0	0	0	77.14	24.91	0	0	0	0	0	0	0	0	0	0
Fugitive	Component Leaks	0	0	0	0	0.57	2.5	0	0	0	0	0	0	0.004	0.02	10	41
Fugitive	Venting	0	0	0	0	-	5.01	0	0	0	0	0	0	-	0.04	-	302
Total	**Total Facility PTE**	**4.74**	**17.08**	**9.80**	**35.54**	**86.57**	**68.74**	**1.45**	**6.13**	**0.05**	**0.19**	**0.34**	**1.28**	**1.51**	**6.25**	**11819**	**50375**

REGULATORY APPLICABILITY

Unless otherwise stated WVDEP DAQ did not determine whether the permittee is subject to an area source air toxics standard requiring Generally Achievable Control Technology (GACT) promulgated after January 1, 2007 pursuant to 40 CFR 63, including the area source air toxics provisions of 40 CFR 63, Subpart ZZZZ and HH.

The following rules apply to the facility:

45CSR2 (Particulate Air Pollution from Combustion of Fuel in Indirect Heat Exchangers)

The purpose of 45CSR2 is to establish emission limitations for smoke and particulate matter which are discharged from fuel burning units. 45CSR2 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 4 (weight emission standard), 5 (control of fugitive particulate matter), 6 (registration), 8 (testing, monitoring, recordkeeping, reporting) and 9 (startups, shutdowns, malfunctions). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed reboiler (DREB1) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR2.

Antero would also be subject to the opacity requirements in 45CSR2, which is 10% opacity based on a six minute block average.

45CSR6 (To Prevent and Control Air Pollution from the Combustion of Refuse)

The purpose of this rule is to prevent and control air pollution from combustion of refuse.

Antero has proposed to have one (1) flare at the facility. The flare is subject to section 4, emission standards for incinerators. The flare has an allowable emission rate of 183 pounds of particulate matter per hour (assuming a natural gas density of 0.044 lb/ft^3). The flare has negligible hourly particulate matter emissions. Therefore, the facility's flare should demonstrate compliance with this section. The facility will demonstrate compliance by maintaining records of the amount of natural gas consumed by the flare and the hours of operation. The facility will also monitor the flame of the flare and record any malfunctions that may cause no flame to be present during operation.

45CSR10 (To Prevent and Control Air Pollution from the Emissions of Sulfur Oxides)

The purpose of 45CSR10 is to establish emission limitations for sulfur dioxide which are discharged from fuel burning units. 45CSR10 states that any fuel burning unit that has a heat input under ten (10) million B.T.U.'s per hour is exempt from sections 3 (weight emission standard), 6 (registration), 7 (permits), and 8 (testing, monitoring, recordkeeping, reporting). However, failure to attain acceptable air quality in parts of some urban areas may require the mandatory control of these sources at a later date.

The individual heat input of the proposed reboiler (DREB1) is below 10 MMBTU/hr. Therefore, this unit is exempt from the aforementioned sections of 45CSR10.

45CSR13 (Permits for Construction, Modification, Relocation and Operation of Stationary Sources of Air Pollutants, Notification Requirements, Administrative Updates, Temporary Permits, General Permits, and Procedures for Evaluation)

45CSR13 applies to this source due to the fact that Antero exceeds the regulatory emission threshold for criteria pollutants of 6 lb/hr and 10 ton/year, and they are also subject to a substantive requirement of an emission control rule promulgated by the Secretary (40CFR60 Subparts JJJJ and OOOO).

Antero paid the appropriate application fee and published the required legal advertisement for a construction permit application.

45CSR16 (Standards of Performance for New Stationary Sources Pursuant to 40 CFR Part 60)

45CSR16 applies to this source by reference of 40CFR60, Subparts JJJJ and OOOO. These requirements are discussed under that rule below.

45CSR22 (Air Quality Management Fee Program)

Antero is not subject to 45CSR30. The West Union Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

Antero is required to pay the appropriate annual fees and keep their Certificate to Operate current.

40CFR60 Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines (SI ICE))

40CFR60 Subpart JJJJ establishes emission standards for applicable SI ICE.

The 1,627 hp Waukesha 7044 GSI RICE (1E-5E) were manufactured after the July 1, 2007 date for engines with a maximum rated power capacity greater than or equal to 500 hp.

The 402 hp natural gas fired generators (6E, 7E) were manufactured after the July 1, 2008 date for engines with a maximum rated power capacity less than 500 hp.

The proposed 1,627 hp Waukesha 7044 GSI RICE (1E-5E) will be subject to the following emission limits: NOx – 1.0 g/hp-hr (3.59 lb/hr); CO – 2.0 g/hp-hr (7.18 lb/hr); and VOC – 0.7 g/hp-hr (2.51 lb/hr). Based on the manufacturer's specifications for these engines, the emission standards will be met.

The proposed 1,627 hp Waukesha 7044 GSI RICE (1E-5E) are not certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ. Therefore, Antero will be required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance.

The proposed 402 hp natural gas fired generators (6E-7E) will be subject to the following emission limits: NOx – 1.0 g/hp-hr (0.89 lb/hr); CO – 2.0 g/hp-hr (1.77 lb/hr); and VOC – 0.7 g/hp-hr (0.62 lb/hr). Based on the manufacturer's specifications for these engines, the emission standards will be met.

The proposed 402 hp natural gas fired generators (6E-7E) are certified by the manufacturer to meet the emission standards listed in 40CFR60 Subpart JJJJ. Therefore, Antero is not required to conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or three (3) years, whichever comes first, to demonstrate compliance.

40CFR60 Subpart OOOO (Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution)

EPA published in the Federal Register new source performance standards (NSPS) and air toxics rules for the oil and gas sector on August 16, 2012. 40CFR60 Subpart OOOO establishes emission standards and compliance schedules for the control of volatile organic compounds (VOC) and sulfur dioxide (SO_2) emissions from affected facilities that commence construction, modification or reconstruction after August 23, 2011. The following affected sources which commence construction, modification or reconstruction after August 23, 2011 are subject to the applicable provisions of this subpart:

a. Each gas well affected facility, which is a single natural gas well.

There are no gas wells at this facility. Therefore, all requirements regarding gas well affected facilities under 40 CFR 60 Subpart OOOO would not apply.

b. Each centrifugal compressor affected facility, which is a single centrifugal compressor using wet seals that is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your centrifugal compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A centrifugal compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are no centrifugal compressors at the West Union Compressor Station. Therefore, all requirements regarding centrifugal compressors under 40 CFR 60 Subpart OOOO would not apply.

c. Each reciprocating compressor affected facility, which is a single reciprocating compressor located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment. For the purposes of this subpart, your reciprocating compressor is considered to have commenced construction on the date the compressor is installed (excluding relocation) at the facility. A reciprocating compressor located at a well site, or an adjacent well site and servicing more than one well site, is not an affected facility under this subpart.

There are reciprocating internal combustion engines located at the West Union Compressor Station that were constructed after August 23, 2011. Therefore, the requirements regarding reciprocating compressors under 40 CFR 60 Subpart OOOO would apply. Antero would be required to perform the following:

- Replace the reciprocating compressor rod packing at least every 26,000 hours of operation or 36 months.

- Demonstrate initial compliance by continuously monitoring the number of hours of operation or track the number of months since the last rod packing replacement.

- Submit the appropriate start up notifications.

- Submit the initial annual report for the reciprocating compressors.

- Maintain records of hours of operation since last rod packing replacement, records of the date and time of each rod packing replacement, and records of deviations in cases where the reciprocating compressor was not operated in compliance.

d. Pneumatic Controllers

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller operating at a natural gas bleed rate greater than 6 scfh which commenced construction after August 23, 2011, and is located between the wellhead and the point of custody transfer to the natural gas transmission and storage segment and not located at a natural gas processing plant.

- Each pneumatic controller affected facility, which is a single continuous bleed natural gas-driven pneumatic controller which commenced construction after August 23, 2011, and is located at a natural gas processing plant.

There are no applicable pneumatic controllers which commenced construction after August 23, 2011. Therefore, all requirements regarding pneumatic controllers under 40 CFR 60 Subpart OOOO would not apply.

e. Each storage vessel affected facility, which is a single storage vessel, located in the oil and natural gas production segment, natural gas processing segment or natural gas transmission and storage segment.

40CFR60 Subpart OOOO defines a storage vessel as a unit that is constructed primarily of nonearthen materials (such as wood, concrete, steel, fiberglass, or plastic) which provides structural support and is designed to contain an accumulation of liquids or other materials. The following are not considered storage vessels:

- Vessels that are skid-mounted or permanently attached to something that is mobile (such as trucks, railcars, barges or ships), and are intended to be located at a site for less than 180 consecutive days. If the source does not keep or are not able to produce records, as required by §60.5420(c)(5)(iv), showing that the vessel has been located at a site for less than 180 consecutive days, the vessel described herein is considered to be a storage vessel since the original vessel was first located at the site.

- Process vessels such as surge control vessels, bottoms receivers or knockout vessels.

- Pressure vessels designed to operate in excess of 204.9 kilopascals and without emissions to the atmosphere.

This rule requires that the permittee determine the VOC emission rate for each storage vessel affected facility utilizing a generally accepted model or calculation methodology within 30 days of startup, and minimize emissions to the extent practicable during the 30 day period using good engineering practices. For each storage vessel affected facility that emits more than 6 tpy of VOC, the permittee must reduce VOC emissions by 95% or greater within 60 days of startup. The compliance date for applicable storage vessels is October 15, 2013.

The storage vessels located at the West Union Compressor Station will be controlled by a VRU which will reduce the potential to emit to less than 6 tpy of VOC. Therefore, Antero is not required by this section to reduce VOC emissions by 95%.

f. The group of all equipment, except compressors, within a process unit is an affected facility.

- Addition or replacement of equipment for the purpose of process improvement that is accomplished without a capital expenditure shall not by itself be considered a modification under this subpart.

- Equipment associated with a compressor station, dehydration unit, sweetening unit, underground storage vessel, field gas gathering system, or liquefied natural gas unit is covered by §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart if it is located at an onshore natural

gas processing plant. Equipment not located at the onshore natural gas processing plant site is exempt from the provisions of §§60.5400, 60.5401, 60.5402, 60.5421 and 60.5422 of this subpart.

- The equipment within a process unit of an affected facility located at onshore natural gas processing plants and described in paragraph (f) of this section are exempt from this subpart if they are subject to and controlled according to subparts VVa, GGG or GGGa of this part.

The West Union Compressor Station is not a natural gas processing plant. Therefore, Leak Detection and Repair (LDAR) requirements for onshore natural gas processing plants would not apply.

g. Sweetening units located at onshore natural gas processing plants that process natural gas produced from either onshore or offshore wells.

- Each sweetening unit that processes natural gas is an affected facility; and

- Each sweetening unit that processes natural gas followed by a sulfur recovery unit is an affected facility.

- Facilities that have a design capacity less than 2 long tons per day (LT/D) of hydrogen sulfide (H_2S) in the acid gas (expressed as sulfur) are required to comply with recordkeeping and reporting requirements specified in §60.5423(c) but are not required to comply with §§60.5405 through 60.5407 and paragraphs 60.5410(g) and 60.5415(g) of this subpart.

- Sweetening facilities producing acid gas that is completely reinjected into oil-or-gas-bearing geologic strata or that is otherwise not released to the atmosphere are not subject to §§60.5405 through 60.5407, 60.5410(g), 60.5415(g), and 60.5423 of this subpart.

There are no sweetening units at the West Union Compressor Station. Therefore, all requirements regarding sweetening units under 40 CFR 60 Subpart OOOO would not apply.

The following rules do not apply to the facility:

45CSR30 (Requirements for Operating Permits)

Antero is not subject to 45CSR30. The West Union Compressor Station is subject to 40CFR60 Subparts JJJJ and OOOO, however they are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided they are not required to obtain a permit for a reason other than their status as an area source.

40CFR60 Subpart Kb (Standards of Performance for VOC Liquid Storage Vessels)

40CFR60 Subpart Kb does not apply to storage vessels with a capacity less than 75 cubic meters. The largest tanks that Antero has proposed to install are 63.60 cubic meters each. Therefore, Antero would not be subject to this rule.

40CFR60 Subpart KKK (Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants)

40CFR60 Subpart KKK applies to onshore natural gas processing plants that commenced construction after January 20, 1984, and on or Before August 23, 2011. The West Union Compressor Station is not a natural gas processing facility, therefore, Antero is not subject to this rule.

45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants)

45CSR19 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollution which Cause or Contribute to Nonattainment)

The West Union Compressor Station is located in Doddridge County, which is an attainment county for all criteria pollutants, therefore the West Union Compressor Station is notapplicable to 45CSR19.

As shown in the table below, Antero is not subject to 45CSR14 or 45CSR19 review.

Pollutant	**PSD (45CSR14) Threshold (tpy)**	**NANSR (45CSR19) Threshold (tpy)**	**West Union PTE (tpy)**	**45CSR14 or 45CSR19 Review Required?**
Carbon Monoxide	250	NA	35.54	No
Nitrogen Oxides	250	NA	17.08	No
Sulfur Dioxide	250	NA	0.19	No
Particulate Matter 2.5	250	NA	6.13	No
Ozone (VOC)	250	NA	68.74	No
Greenhouse Gas (CO_2e)	100,000	NA	50,375	No

TOXICITY OF NON-CRITERIA REGULATED POLLUTANTS

There will be small amounts of various non-criteria regulated pollutants emitted from the combustion of natural gas. However, due to the concentrations emitted, detailed toxicological information is not included in this evaluation.

AIR QUALITY IMPACT ANALYSIS

Modeling was not required of this source due to the fact that the facility is not subject to 45CSR14 (Permits for Construction and Major Modification of Major Stationary Sources of Air Pollutants) as seen in the table listed in the Regulatory Discussion Section.

SOURCE AGGREGATION

"Building, structure, facility, or installation" is defined as all the pollutant emitting activities which belong to the same industrial grouping, are located on one or more contiguous and adjacent properties, and are under the control of the same person.

The West Union Compressor Station is located in Doddridge County and will be operated by Antero.

1. The West Union Compressor Station will operate under SIC code 4932 (Natural Gas Distribution). There are other compressor stations operated by Antero that share the same two-digit major SIC code of 49 for natural gas transmission. Therefore, the West Union Compressor Station does share the same SIC code as other Antero compressor stations.

2. "Contiguous or Adjacent" determinations are made on a case by case basis. These determinations are proximity based, and it is important to focus on this and whether or not it meets the common sense notion of a plant. The terms "contiguous" or "adjacent" are not defined by USEPA. Contiguous has a dictionary definition of being in actual contact; touching along a boundary or at a point. Adjacent has a dictionary definition of not distant; nearby; having a common endpoint or border.

   There are no Antero properties in question that are considered to be on contiguous or adjacent property with the West Union Compressor Station. The closest Antero well site is approximately 1.7 miles from this site. The closest Antero compressor station is approximately 8 miles from this site. The land between these sites is not owned or managed by Antero. Operations separated by these distances do not meet the common sense notion of a plant. Therefore, the properties in question are not considered to be on contiguous or adjacent property.

3. Common control. The closest Antero well site is approximately 1.7 miles from this site. The closest Antero compressor station is approximately 8 miles from this site. The land between these sites is not owned or managed by Antero.

Because the facilities are not considered to be on contiguous or adjacent properties, the emissions from the West Union Compressor Station should not be aggregated with other facilities in determining major source or PSD status.

MONITORING OF OPERATIONS

Antero will be required to perform the following monitoring:

1. Monitor and record quantity of natural gas consumed for all engines and combustion sources.
2. Monitor the presence of the flare pilot flame with a thermocouple or equivalent.
3. Monitor all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.

Antero will be required to perform the following recordkeeping:

1. Maintain records of the amount of natural gas consumed and hours of operation for all engines and combustion sources.
2. Maintain records of testing conducted in accordance with the permit. Said records shall be maintained on-site or in a readily accessible off-site location
3. Maintain the corresponding records specified by the on-going monitoring requirements of and testing requirements of the permit.
4. Maintain records of the visible emission opacity tests conducted per the permit.
5. Maintain a record of all potential to emit (PTE) HAP calculations for the entire facility. These records shall include the natural gas compressor engines and ancillary equipment.
6. Maintain records of all applicable requirements of 40CFR60 Subparts JJJJ and OOOO.
7. Maintain records of the flare design evaluation.
8. The records shall be maintained on site or in a readily available off-site location maintained by Antero for a period of five (5) years.

RECOMMENDATION TO DIRECTOR

The information provided in the permit application indicates that Antero meets all the requirements of applicable regulations. Therefore, impact on the surrounding area should be minimized and it is recommended that the West Union Compressor Station should be granted a 45CSR13 construction permit for their facility.

Jerry Williams, P.E.
Engineer

Date